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Enabling effective change.

ENSURING THE FOUNDATIONS FOR A SUCCESSFUL

BIMPLEMENTATION



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Chapter 1:

Enterprise Architecture: Why is it Important?

When implemented successfully, business intelligence will provide insights and analysis to enable a business to gain competitive advantage and stimulate growth. However, does your business have the foundations to support a business intelligence implementation?

Business intelligence can only deliver its full value and potential when the information being consumed reflects a true view of your business environment. The building blocks that will enable you to uncover your current state of affairs include a robust enterprise architecture. This white paper aims to give you the information you need to ensure your current business' enterprise architecture is strong enough to support a business intelligence implementation and explain how it affects your ability to achieve success.

Why Enterprise Architecture?

- Do you always have the debate about whose report has the right number?
- Are you losing time because of systems integrations issues (e.g. duplication of data-entry)?
- Do you have silos of capabilities and information across the business?
- Do you have an "accidental architecture" where multiple technologies and applications exist without knowing how they assist in achieving your strategic objectives?
- Do your business users continually engage directly with suppliers to bring in new solutions to make up for current challenges they are facing?

If you have answered yes to any of the above questions, then you are experiencing the symptoms of either no or an inadequate enterprise architecture.



Enterprise Architecture: Why is it Important?

What is Enterprise Architecture?

Enterprise architecture is a term used to encapsulate elements that, combined, will result in processes and technology enabling the delivery of strategic objectives.

Enterprise architecture flows down from the top starting at the overall business architecture (your vision, strategy and strategic objectives) which will define the information requirements of the organisation. The information architecture will have an impact on the data architecture and technology architecture of the organisation which in turn will determine the network and infrastructure options open to you.



Looking at your company from this point of view, it becomes easier to see the impact poor architectural decisions have on the achievement of your strategic objectives.



Chapter 2: Business Architecture

At the top of your enterprise architecture model is the business architecture, your raison d'être.

Strategy can be defined as 'the direction and scope of an organisation over the long term, which achieves advantage for the organisation through its configuration of resources'. Business architecture covers your strategy and strategic objectives along with the governance and business processes (both primary and supporting) that will support its delivery.



One of the tools we use to help define the business architecture is our "Business Value Map". This tool (see below) shows the link between your strategic objectives, summarised in value driver objectives, and the business processes that will enable the delivery of those strategic objectives as summarised through value drivers.



How Business Architecture Impacts Upon BI:

One of the key benefits of a Business Intelligence solution is that it enables rapid insight into the drivers of your business performance.

When all of these key areas of your business architecture are clearly defined and integrated, you can ensure your business strategy is being delivered through accurate and real time reporting. Allowing you to make sure your business is delivering value from efficient, effective

processes and being governed and reviewed consistently and directly.

If your business architecture is not clear, the output from your BI implementation may be focused on areas that do not directly impact on your strategy.



Chapter 3: Information Architecture

Now that you have a view of your strategy, strategic objectives and value drivers, business processes and the governance mechanism in place, the next step is to define the information architecture that will support these.

Driving a business is all about using knowledge to make the right decisions and it is information that is needed to create that knowledge. Without information architecture there is a distinct risk of developing silos of information – and that can result in lost opportunities, continued inefficiency and a struggle to get 'one version of the truth'.

Key to the information architecture is answering the questions of 'what, who and where':

WHAT: What processes are being supported? What types of decisions are being made? WHO: Who will have access? Who needs to do what?

WHERE: Where is the data now? Where will it be integrated? Where will the information be consumed?

These questions are answered through the designing of the data integration framework (DIF). The DIF covers how you will transform the internal and external data into information using business rules and how this information will be made available to users.



Information Architecture

The DIF should cover the following areas:

- 1. Data management (profiling and modelling)
- 2. Data preparation and integration into one or more data warehouses
- 3. Data franchising (converting data into information for reporting/analysis)
- 4. Data integration into one or more data marts, OLAP, NoSQL repositories
- 5. How the users will consume the information
- 6. Metadata management ensuring consistent definitions across the entire organisation

Information architecture also covers Master Data Management (MDM) which is the key process in ensuring the quality of data. There are six core dimensions of data quality that need to be assured through the MDM process:

Completeness – the proportion stored against the potential of 100% complete Uniqueness – nothing recorded more than once Timeliness – the degree to which data represents reality from the required point in time

Validity – conformity to syntax of its definition

Accuracy – the degree to which the data correctly describes the "real world" object or event being described

Consistency – the absence of difference when comparing two or more representations of a thing against a definition

Master Data Management does not necessarily cover all data in the organisation therefore it is important in the information architecture stage to identify what data requires MDM as well as the type of procedures needed to create quality data.



Information Architecture, the basis for success with BI:

By designing your information requirements clearly, the 'What, Who and Where' of your information can be managed with a high level of efficiency. This level of access and control over your business information is a defining feature of a successful BI implementation.

Without a defined rule set for master data, the accuracy of any further data analysis is put at risk. Being able to pull trustworthy information at any moment, in a format you are able to clearly analyse and distribute directly is a huge benefit to any organisation.

Without robust information architecture a BI implementation will not deliver upon its value.



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Data architecture covers the schemas, integration, transformation, storage and workflow which enable the information architecture of the organisation. It is the blueprint which aligns your data with your organisational strategy.

This blueprint will include which components in your environment will serve as the system of record (SOR) for your master data, any standards that are to be adopted along with the how and where data is created, stored, transported and reported.

There are several choices available when it comes to data architecture, and in this paper we will take a closer look at the following options:

1. Kimball's Data Bus

2. Inmon's Corporate Information Factory (CIF)

3. Sherman's Analytical Data Architecture (ADA)



1. Kimball's Data Bus

The focus in the Kimball architecture is the "front room" with its data marts and OLAP cubes which is then consumed by users using a variety of toolsets including reporting, dashboard and other analytical applications.

There is no need for the enterprise data warehouse in this model on the assumption that the data quality is managed through the ETL system.

The data bus architecture is designed from the bottom-up using the business requirements-driven approach to design the data schemas.

Business Users





2. Inmon's Corporate Information Factory (CIF)

Inmon's Corporate Information Factory has a data preparation and integration stage as well as the transfer into an enterprise data warehouse (EDW) prior to being pushed into the various data marts for consumption.

CIF is created from the top-down based on the source systems to design the EDW.

Industry has tended towards this model of data architecture.

Business Users

Data Marts





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3. Sherman's Analytical Data Architecture (ADA)

The analytical data architecture is a hybrid architecture which is best placed for the evolving nature of the technology landscape. The system of integration contains the data structures that will be used to integrate and ensure data quality.

The systems of analytics are the data structures that are used by applications to enable reporting and analytics.



Which approach should you choose?

While each model has its advantages, we find that the hybrid ADA model is usually preferred.

The reason for this is the ability of the hybrid model to deal with a rapidly changing technological environment, an example being the fact that the systems of analytics now comprises NoSQL and other non-structured data repositories.



Data Architecture & BI are Intrinsically Linked

The success of your BI system is dependent on the quality of your data. The quality of your data is dependent on the quality of its architecture.

A BI implementation must be able to adapt to technological changes as effectively as it does to business changes. How business data is collected, stored and distributed will always adapt to advancements in security and scale.

Without data architecture that is designed to withstand an ever-changing environment the value delivered by a BI will be heavily reduced.



Technology Architecture

The technology architecture will provide a blueprint covering individual applications and their interactions that will support the data, information and business architectures.

During the creation of each of the elements of the enterprise architecture the business and technical requirements will have been gathered as an inherent part of the process. These requirements are then used to determine the fit of various applications – including current applications the organisation may already be using.

A selection of tools that assist in designing the technology architecture include:

- Requirements matrix
- Application/role matrix
- Application/function matrix

The design of the technology architecture will result in a roadmap showing which applications will be implemented to close the gap to the vision of the future the organisation has.

As a rule of thumb: Choose the right BI software to fit with your technology architecture. Don't adapt your technology architecture to fit software.



How Technology Architecture Affects BI

The availability and range of business intelligence software is wide and vast. It can often seem an easier choice to simply invest in a Tier 1 vendor's BI solution. There's a veil of comfort that comes from knowing the brand and trusting the capabilities of the software from the outset.

However, don't just jump to that conclusion – make it a conscious decision through a robust selection process. Select the right fit BI software for your business, your business strategy and your enterprise architecture.

By taking the time to review the technological foundations along with the business, information and data architectures your business is built upon, your specific requirements will be clearer. Once you have these, you can find the ideal BI solution for your business.





The network/infrastructure element details the hardware capabilities that will be needed to support the technology architecture.

There is no one-size-fits all when it comes to network and infrastructure and with the advent of cloud there are a multitude of options available that mean this area is constantly changing. Your network/infrastructure requirements will be dependent upon your industry, regulations, sector standards, budget and security concerns as well as the needs set by your Technology Architecture.

This is yet another area that must addressed with a long term perspective. Short term vision will

expose your business to the risk of increased costs of maintenance, lack of support and importantly, security risks. The infrastructure should be looked upon just like the foundations of your offices. If they are not strong enough your business could collapse.

No matter what type of business software you are looking to implement, whether it be ERP, WMS, SCM, CRM or BI; the importance of a strong and stable infrastructure will always be a key element to achieving success.



Why Enterprise Architecture is Critical to BI Success

A robust Business Intelligence solution that delivers business benefits relies upon the structure and strength of your enterprise architecture.

If you are undertaking a BI project, you need to put effort and focus on getting the enterprise architecture right. Otherwise you are exposed to the risks of implementation failure, wasted budget and minimal business benefits.

With clear business, information, data and technology architectures your organisation will be best placed for BI success.

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Our Top 10 Tips For Designing Your Enterprise Architecture:

- 1. Ensure buy-in from the top levels of your organisation
- 2. Involve the business fully, this should not be an IT-only initiative
- 3. Make sure your objectives are measurable and can be tracked easily
- 4. Don't get stuck in "paralysis by analysis", especially when it comes to the Business Value Map
- 5. Gather requirements as you go through the designing of your architecture
- 6. Consider total cost of ownership when it comes to data

architecture; including the time lost debating whose information is correct

7. Don't go straight to products when designing the technology architecture

8. Review your architecture annually to ensure it is still valid

9. Don't try and do everything at once. The enterprise architecture is a long-term journey.

10. Involve the right subject matter experts throughout the process

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Optimum PPS are BI & ERP specialists. All of our consultancy services are built around leveraging the full potential of BI & ERP systems – driving business growth, business value and profitability.

We are all about ensuring successful BI & ERP implementations for our clients.

Enabling effective change.

(+44) 141 221 3257 info@optimumpps.co.uk optimumpps.co.uk

Birmingham Office Quayside Tower Broad Street Birmingham B12HF Glasgow Office Suite 220 Baltic Chambers 50 Wellington Street Glasgow, G2 6HJ